Tutorial on DrCCTProf

Xu Liu
North Carolina State University

NC STATE UNIVERSITY

Who We Are

- Organizer
  - ✦ Xu Liu, Associate Professor, North Carolina State University

- Speakers
  - ✦ Derek Bruening: Google
  - ✦ Milind Chabbi: Scalable Machine Research
  - ✦ Pengfei Su: University of California, Merced
  - ✦ Qidong Zhao: NC State University

NC STATE UNIVERSITY

What You Expect to Learn

- Build your own binary tools
  - ✦ Powerful and customizable analysis
  - ✦ Intuitive visualization
  - ✦ Easy deployment on x86 and ARM machines

3

Prerequisites for This Tutorial

- Basic knowledge about C/C++ programming

- Basic knowledge about assembly languages

Logistics

- Webpage: https://www.xperflab.org/drcctprof/tutorial

- Presentation will be recorded and posted online

- Slides will be posted

Agenda

1:00 - 1:10pm: **Welcome Notes**, Xu Liu

1:10 - 1:40pm: **Introduction to DynamoRIO**, Derek Bruening

1:40 - 2:30pm: **DrCCTProf and Its Internals**, Xu Liu

2:30 - 2:45pm: **Break**

2:45 - 3:15pm: **Pinpointing Program Inefficiencies with DrCCTProf Clients — LoadSpy**, Pengfei Su

3:15 - 3:45pm: **Identifying Inefficient Memory Stores with DrCCTProf Clients -- DeadSpy and RedSpy**, Milind Chabbi

3:45 - 4:15pm: **DrCCTProf APIs and GUIs**, Qidong Zhao

4:15 - 4:25pm: **Break**

4:25 - 5:00pm: **A Hands-On Lab: Developing the First DrCCTProf Client Tool on ARM** Qidong Zhao and Xu Liu